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Paleoindian

The oldest archeological cultures of the New World, the ancestors of modern Native Americans, are termed Paleoindian. These colonizing populations of the Americas were *Homo sapiens sapiens* who arrived during the late Pleistocene (Ice Age) from Asia, though precisely when, and whether in a single or multiple pulses of migration, are not yet known.

Arrival in America

The presumed entryway was the Bering Straits, which emerged as dry land during glacial periods, when as much as 5% of the world's water was frozen in massive continental ice sheets (see illus.). As glaciers expanded, sea levels dropped 100−150 m below their present levels, exposing shallow parts of the continental shelf worldwide, including that beneath the Bering Sea. The Bering Land Bridge (or Beringia) existed most recently between 25,000 and 11,000 years before present (B.P.), during the last major episode of the Pleistocene. Even at earlier (and later) unglaciated times when Beringia was under water, crossings on foot may have been possible over winter pack ice.

Fig. Location of some important North American Paleoindian populations during the late Pleistocene ice age.

There were no significant geographic or ecological barriers to cross−Beringian traffic. The land bridge was about 1500 km (932 mi) wide, mostly flat, cold, relatively dry, and free of glaciers, except in the mountains on its edges. The absence of barriers explains why the late Pleistocene animal communities of Siberia and Alaska were essentially identical.

The conditions that linked Siberia to Alaska may have simultaneously hindered migration south from Alaska. Groups headed in that direction had two potential routes (broadly defined): down the Pacific coast, or via the continental interior along the eastern flank of the Rocky Mountains. During the late Pleistocene the vast North American glaciers, the Cordilleran and Laurentide, covered much of the Northwest Territories and Canada (at their maximum at 18,000 B.P., extending in western North America from 75° to 48° N), and at times effectively blocked both routes.

Current evidence indicates that a coastal route was largely unglaciated and traversable on foot before 23,000 and after 14/13,000 B.P. (the timing of deglaciation is complex and poorly known). In the millennia in between, 20−50−km−wide tongues of heavily crevassed glacial ice extended down to the coast, obstructing passage. Groups in watercraft may have skirted down the coast, but there is no evidence for such craft, or of a group with the adaptation necessary to survive in a maritime environment (the land being either under ice or resource−poor). By 14,000 B.P., the outer coast was becoming suitable for human colonization: a partly vegetated environment of open tundra with grasses, sedges, and dwarf willows began to develop, and became forested by 12,000 B.P.

For groups headed south via the continental interior, the northern approaches to the eastern slopes of the Rocky Mountains were blocked by the Laurentide glacier, which lapped against the eastern flanks of the Richardson and Mackenzie mountains as early as 30,000 B.P., and remained there until around 11,500 B.P. Groups could have skirted south of those ranges and emerged east of the Rocky Mountains via one of the southern passes (such as along the Liard River), but whether or when such routes would have been traversable is yet unknown. Once the Cordilleran and Laurentide glaciers retreated and opened an ice−free corridor along the Rocky Mountain front, it was 2000−3000 years

before the deglaciated landscape was recolonized by plants and animals. Only then, after approximately 11,500 B.P., did the corridor provide sufficient food resources for migrating humans.

There is no evidence yet as to which routes might have been taken. The earliest archeological evidence of a human presence along the Pacific Northwest coast dates to about 9500 B.P., and in the interior corridor to 10,500 B.P.both well past the presumed entry time. To complicate the picture, the Pleistocene coastline, and any early archeological sites that might be on it, is now mostly underwater following postglacial sea−level rise.

Antiquity

So far, the earliest archeologically confirmed dates put human groups in the Lena Basin and Lake Baikal region of northeast Asia at about 39,000 B.P., in subarctic Siberia by 25,000 B.P., but not in western Beringia (such as Kamchatka) until 14,000 B.P. Humans were in eastern Beringia (Alaska) soon after 12,000 B. P., and present south of the ice sheets in North America by at least 11,500 B.P.the latter represented by the Clovis culture. Yet, the earliest accepted archeological evidence puts human groups in South America earlier still, by at least 12,500 B.P. at the site of Monte Verde, Chile.

There are no obvious historical or technological affinities between Clovis and the Monte Verde materials, suggesting that the two may represent populations with distinct archeological traditions and separate migratory pulses: a later one (Clovis) that came south through the ice−free corridor soon after it became viable for travel, and an earlier population that perhaps moved along the Pacific coast and reached South America without, so far at least, any traces being found in North America. A hypothesis of multiple migrations, however, must remain tentative, given the small number of early South American sites known (Monte Verde represents one of the only sites of this age, so broader cultural patterns in artifacts or adaptations have yet to be recognized), the liabilities of comparing archeological assemblages so widely separated in time and space, and the evidence from some genetic studies which indicates all Native Americans are descended from a single group. Nonetheless, the possibility of multiple migrations is reasonable, given the absence of barriers to cross−Beringian traffic, and the long period in which potential source populations were present in northeast Asia. There were likely repeated movements from Asia to America and back.

Progenitors

None of the artifact complexes evident among late Pleistocene northeast Asian groups appears similar to those of New World Paleoindians. There are, however, archeological assemblages in Alaska (the Nenana Complex) that slightly predate Clovis and are argued to be similar in form and technology and thus historically linked. Yet, these assemblages lack the diagnostic hallmark of the Clovis technologyfluted projectile points. Fluted points (though not Clovis fluted points) are present (if rare) in Alaska, but none of these specimens has been dated earlier than Clovis, and many appear younger than those farther south.

The absence of an obvious Asian (or Alaskan) predecessor has led some to argue that Clovis is derived from Upper Paleolithic groups in western Europe, known as Solutrean, who supposedly crossed the north Atlantic to reach America. However, current archeological evidence, as well as evidence from genetics, human osteology and teeth, and linguistics, provides no support for such a link (or, for that matter, for a link to any other non−Asian source population). The morphological differences between a few ancient human skeletal remains found in the Americas (such as at Kennewick, WA) and those of modern Native Americans have been seen as supporting the hypothesis, that the Americas may have been peopled from continents other than Asia. Yet, most likely all these individuals are descended from northeast Asians, the differences in their form over time the result of long periods of geographic isolation, mutation and genetic drift, and evolutionary change among descendant populations.

North and South America

Clovis and Clovis−like materials are concentrated in North America, and the northern reaches of Central America. Clovis is a widespread entity that first appears on the western Plains and southwest at 11,500 B.P. and in eastern North America at 10,600 B.P. That Clovis and related groups apparently expanded across the continent in what may have been less than 1000 years is all the more remarkable given that they spread at a time of geologically rapid environmental and climatic change marked by continental deglaciation, the extinction of nearly 36 genera of large mammals (megafauna), and the dissolution of long−standing biotic communities. Yet Clovis groups seemingly coped with such adaptive challenges with ease: their stylistically distinctive projectile points and tool kitsoften including bifacial knives, a variety of unifacial scrapers, occasional blades and flake tools, and (more rarely) bone and ivory implementsare surprisingly similar across the continent. These were highly mobile groups who relied on high−quality stone often obtained from geological sources hundreds of kilometers from the sites where the stone was used and discarded. Their rapid radiation, broadly similar tool

kits, and long−distance movement bespeak a cultural "founders effect," suggesting their access to large areas of North America was largely unrestrictedthese groups were moving across an essentially empty landscape.

Some argue the similarity in the Clovis tool kit and the rapidity of their movement bespeak a uniform adaptationbig−game hunting. Others take the argument a step further, suggesting that Clovis predation on mammoth and mastodon and other megafauna drove these animals to extinction in the late Pleistocene. Yet, the archeological record for big−game hunting is limited to a dozen sites on the Plains and southwest. In most other areas, there is no evidence that big game was exploited. Instead, Clovis subsistence, it appears, more often involved less risky and smaller preyand presumably plants, though remains of such are rarely preserved in the archeological record of this period.

Although the timing varies by area, by 10,500 B.P. the Clovis tradition was replaced by regional Paleoindian variants, which generally (though not always) have reduced settlement mobility (relative to Clovis), and include new technologies, prey−specific strategies for hunting and processing (such as the intensive use of bison on the Plains), increasing use of local resources, and distinctive stylistic elements and functional artifact forms. This shift from broad and overall homogeneity in Clovis times to narrower and more regionally restricted complexes in later Paleoindian times likely reflects the setting in of colonizers to specific areas or habitats, and increasingly region−specific adaptations.

The South American Paleoindian record, by contrast, does not evince any artifact forms that dominate the archeological landscape as Clovis does. Instead, this period is marked by more diverse unifacial and bifacial stone tool technologies, often made of stone acquired locally (and not necessarily of superior quality), and includes forms such as bolasmodified spherical stones used in slings or as hand missiles. Projectile points tend to be less common in assemblages here than in North America, and show considerable stylistic variety. While Clovis points per se are absent from South America, some point forms are fluted, which is often cited as evidence of a historical link between the continents. However, there is growing debate about whether that similarity is merely a case of technological convergence.

South American Paleoindians utilized a wide range of animals, and early on even made occasionally heavy use of plants. This is especially evident at Monte Verde, which yielded (in 12,500 B.P. deposits) nearly 70 species of plants, most locally available but some acquired from the distant highlands and coast. Many had food, medicinal, or economic value. An early (pre−10,000 B.P.) use of plants across the continent was followed within just a few millennia by the emergence of domesticated plants (which occur much earlier here than in North America). Generalized foraging, with occasional big−game hunting, is not unexpected, given the considerable ecological variability and richness of South America. In part, this may reflect the fact that glaciation was not nearly so extensive on this continentits effects were limited to high altitudes and high latitudes. While that prevented early colonization of those areas, in the remainder of the continent early immigrants could move freely throughout environments that were fairly dynamic in some areas, relatively stable in others, and in places ecologically rich. There was also use of nonterrestrial environments: early use of maritime resources is evident at several sites on the Atlantic and (especially) the Pacific coasts. Such adaptations played a key role in establishing early sedentary lifestyles.

Once the founding population dispersed across South America (over an unknown length of time), subgroups became geographically isolated relatively quickly. From the earliest known site at 12,500 B.P. (Monte Verde) until the end of the Pleistocene (10,000 B.P.), there is a continuing diversification in tool forms and technology, evidently reflecting less mobility, increasing heterogeneity and regional mosaics in culture and adaptations, and less expansive social networks and territories.

All told, it is a different trajectory from the one that unfolded in North Americatestimony that the earliest colonization of the two continents, though ultimately derived from the same northeast Asian source, may have taken place at different times under very different circumstances. See also: Archeology; Pleistocene; Prehistoric technology

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For Further Study

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Education

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